



A new genus and species of congrid eel from the Philippines (Anguilliformes: Congridae: Bathymyrinae)

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Abstract

Rostroconger macrouriceps **sp. nov.** is described from a single specimen collected off the east coast of Luzon, Philippines. It is a member of the subfamily Bathymyrinae, differing from all others in the presence of a bony rostrum extending from the anterior end of the snout. The posterior nostril opens into a slit in the upper lip and is not visible externally. The head pores are reduced in size and number; only three pores are present in the infraorbital canal, four in the supraorbital canal, and none in the preopercular or supratemporal canals.

Key words: Pisces, Anguilliformes, Congridae, *Rostroconger*, new genus, new species

Introduction

The specimen described here was collected during a marine faunal survey conducted in the Philippines in conjunction with the Academia Sinica, Taiwan in 2007. The author found it during his visit to the institution in 2009. Initially identified as *Congriscus megastomus* Günther, family Congridae, closer examination showed it to be different from all known species. The differences were such that a new genus was required. The genus and species are described here.

Material and methods

Most counts and measurements are as in Smith & Kanazawa (1977). Predorsal lateral-line pores include those under and before first dorsal-fin ray, prepectoral lateral-line pores under or before base of pectoral fin, and preanal lateral-line pores under or before first anal-fin ray. The specimen is deposited in the collection of the Academia Sinica Biodiversity Research Center, Taiwan (ASIZP). All lengths are given in millimeters (mm). Abbreviations for measurements are: TL, total length; HL, head length. Abbreviations for pores are: IO, infraorbital; LL, lateral line; POM, preoperculomandibular; SO, supraorbital; ST, supratemporal.

Family Congridae

Diagnosis. Medium to large size. Body moderately elongate to elongate, round in cross section anteriorly, compressed posteriorly; anus usually located at anterior one-half to one-third TL; tail variable in form, from blunt to slender. Snout variable in form, from long and slender to short and pug-nosed. Mouth variable, gape usually ending below eye; upper jaw usually longer than lower, occasionally jaws equal, and rarely lower jaw longer. Eye well developed. Anterior nostril tubular, near tip of snout; posterior nostril usually on side of head in front of eye, rarely above eye or on upper lip; flange on upper and lower lip present or absent. Teeth variable, from small and granular to long and fang-like. Gill opening usually a crescentic slit just in front of pectoral fin. Dorsal and anal fins present, confluent around tip of tail; dorsal-fin origin closer to pectoral fin than to anus. Pectoral fin usually present and well developed. Lateral line complete. Scales absent.

Key to the subfamilies of Congridae

- 1a. Body extremely long and slender; pectoral and caudal fins reduced or absent; mouth short and oblique, lower jaw projecting beyond upperHeterocongrinae
- 1b. Body moderately stout to moderately slender; pectoral and caudal fins present; mouth horizontal, jaws equal or upper jaw projecting 2
- 2a. Preanal length usually greater than 40% TL; caudal fin short and tip of tail stiff; posterior nostril below mid-eye level; dorsal- and anal-fin rays unsegmented; flange present on upper lipBathymyrinae
- 2b. Preanal length usually less than 40% TL; posterior nostril at or above mid-eye level; dorsal- and anal-fin rays segmented; flange on upper lip present or absentCongrinae

Key to the genera of Bathymyrinae

- 1a. Opening of posterior nostril exposed in lateral view 2
- 1b. Opening of posterior nostril concealed in lateral view 5
- 2a. Teeth in jaws in multiserial bands *Ariosoma* Swainson 1838
- 2b. Teeth in jaws in one or two series 3
- 3a. Upper edge of gill opening above top of pectoral-fin base, enclosing entire pectoral fin; outer row of maxillary teeth blade-like, close-set, forming a cutting edge *Paraconger* Kanazawa 1961
- 3b. Upper edge of gill opening below top of pectoral-fin base, not enclosing entire pectoral fin; teeth variable 4
- 4a. Intermaxillary tooth patch curved upward at end of snout, fully exposed when mouth closed; maxillary teeth mainly uniserial, forming a cutting edge; IO3 and IO4 pores present *Bathymyrus* Alcock 1889
- 4b. Intermaxillary tooth patch not curved upward at end of snout, not completely exposed when mouth closed; maxillary teeth triserial, not forming a cutting edge; IO3 and IO4 pores absent *Chiloconger* Myers & Wade 1941
- 5a. An acute bony projection at end of snout *Rostroconger* **gen. nov.**
- 5b. End of snout rounded and fleshy, without a bony projection 6
- 6a. Posterior nostril low on side of snout near lip, covered by a flap dorsally *Parabathymyrus* Kamohara, 1938
- 6b. Posterior nostril opening through a ventrally directed tube on edge of upper lip behind labial flange
..... *Kenyaconger* Smith & Karmovskaya 2003

Rostroconger **gen. nov.**

Type species: *Rostroconger macrouriceps* **sp. nov.**

Diagnosis. A member of the family Congridae, subfamily Bathymyrinae, distinguished from other genera by the presence of an acute bony projection at the tip of the snout, and the posterior nostril opening as a ventrally directed slit on the side of the head just above the upper labial flange.

Description. That of the only known species.

Etymology. From the Latin *rostrum*, in reference to the bony projection from the snout, and *Conger*, a genus of congrid eel.

Rostroconger macrouriceps **sp. nov.**

Figures 1–2.

Holotype. ASIZP 68072 (241 mm TL), Aurora, Luzon, Philippines, 15°11'04.2"N, 121°34'43.2"E, 28 May 2007, 244–296 m, French type beam trawl, coll. Y.-C. Liao & K.-T. Shao.

Diagnosis. That of the genus.

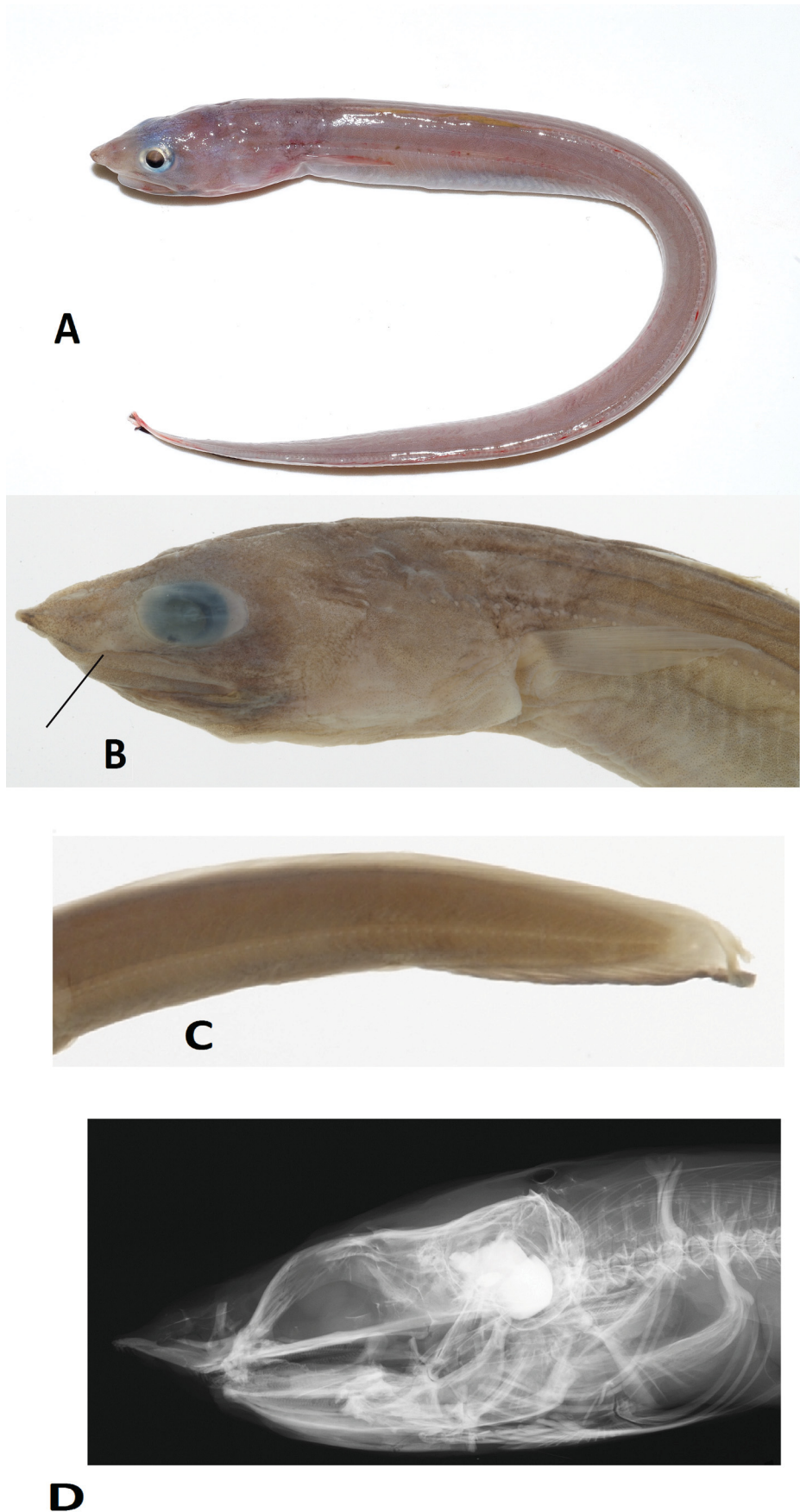


FIGURE 1. *Rostroconger macrouriceps* sp. nov., holotype, 241 mm TL. A. Lateral view of fresh caught specimen. B. Lateral view of head, line indicates position of posterior nostril. C. Lateral view of tail. D. Radiograph of head with bony rostrum.

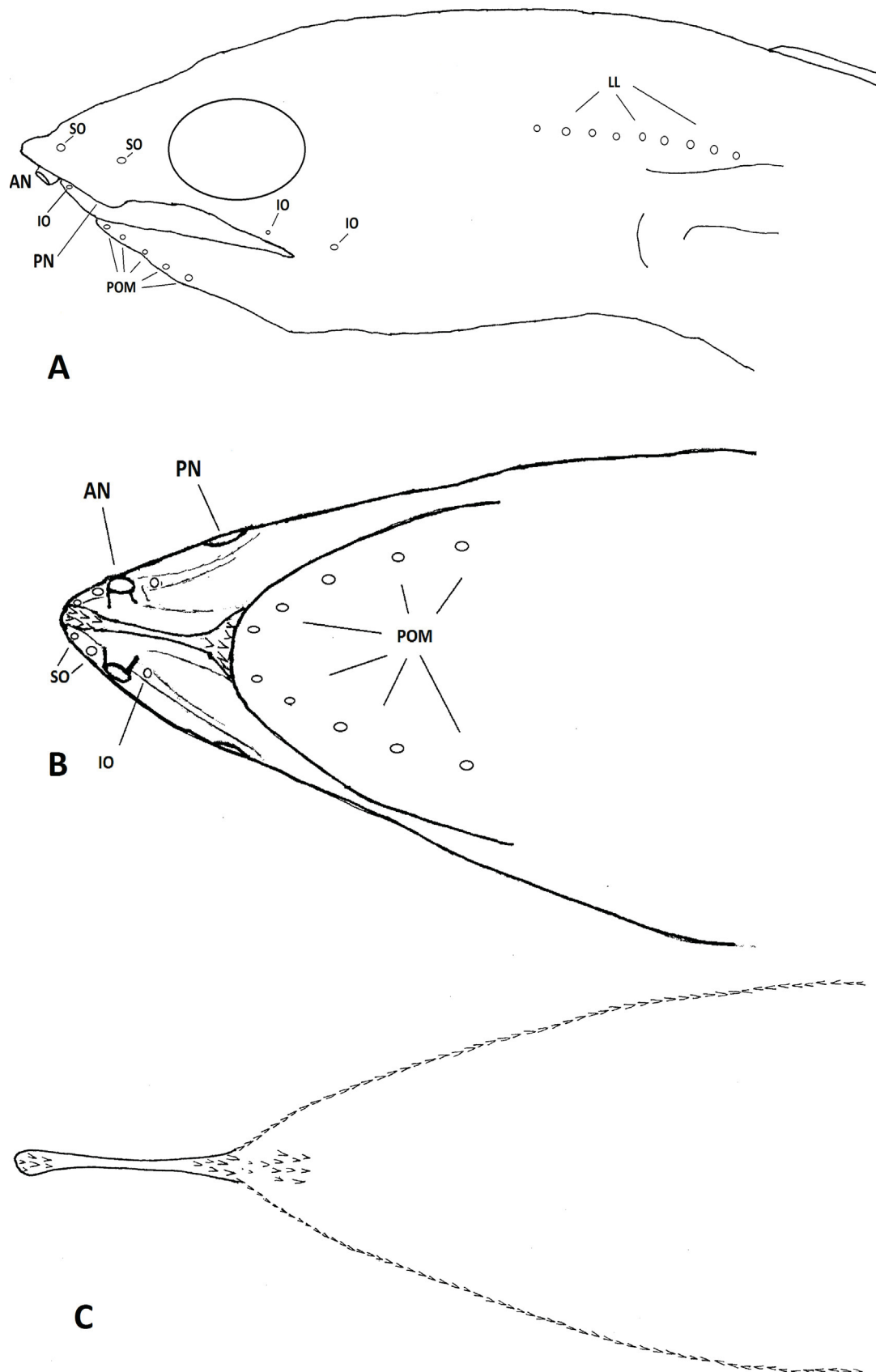


FIGURE 2. *Rostroconger macrouriceps* sp. nov., from the holotype. A. Lateral view of head showing position of nostrils and pores. AN, anterior nostril; PN, posterior nostril. B. Ventral view of head, showing position of nostril and pores. C. Tooth pattern of upper jaw.

Description. Morphometric and meristic characters, length in mm with proportions in parentheses. TL 241 mm; preanal 98 (40.7 % TL), predorsal 45.3 (18.8 % TL), head 38.4 (15.9 % TL), trunk 59.6 (24.7% TL), tail 143 (59.4% TL), depth at anus 12.8 (5.3 % TL), snout 8.9 (23.2 % HL), eye 7.8 (20.3 % HL), snout-rictus 16.0 (41.7 % HL), gill opening 3.8 (9.9 % HL), interbranchial 9.5 (24.7 % HL), pectoral fin 17.3 (45.1 % HL). Preanal LL pores 39, predorsal LL pores 11, prepectoral LL pores 6, POM pores 5, IO pores 2, SO pores 4, ST pores 0. Pectoral-fin rays 13. Vertebrae: predorsal 12, preanal 45, precaudal ca. 63, total 143; myorhabdoi present.

Body moderately stout, tail distinctly longer than head and trunk, relatively broad and bluntly rounded, its tip stiffened (Fig. 1a). Dorsal fin beginning slightly behind midpoint of appressed pectoral fin; dorsal and anal fins continuous with caudal fin. Caudal fin well developed, not noticeably shortened, but with basal part of central rays reinforced and resistant to being bent. Pectoral fin well developed, its base oriented vertically. Gill opening moderately small, oriented nearly vertically, with a slight anterodorsal to posteroventral incline, its upper corner at middle of pectoral-fin base; distance between ventral corners of right and left gill openings separated across ventral midline by a distance slightly more than twice their length.

Head moderate in length and depth, snout distinctly acute due to bony rostrum, which is somewhat flattened in a dorsoventral direction, giving the head a macrourid-like appearance (Fig. 1b). Rictus at about level of posterior margin of eye. Upper and lower labial flanges well developed, the upper flange extending forward along rostrum to anterior nostril. Bony rostrum extending forward from vomerine tooth patch, forming a distinct naked floor on underside of rostrum; inclined slightly upward in lateral view (Fig. 1c). Top of head covered with small dermal bumps.

Anterior nostril on underside of snout, behind its tip, tubular, opening in an anteroventral direction. Posterior nostril opening ventrally as a slit in edge of groove separating surface of snout from upper labial flange, at a point slightly closer to eye than to tip of snout (Figs 1b, 2a, 2b).

Head pores small, each at the end of a blunt papilla (Figs. 2a, b). Four SO pores; first two located on underside of snout, the first very small, just behind tip of snout; the second slightly larger, just behind first and adjacent to base of anterior nostril; third on top of snout, above level of anterior nostril; fourth on side of snout just above posterior nostril; fifth and sixth pores absent. Three IO pores; the first just behind base of anterior nostril; the second above posterior end of labial flange, slightly behind mid-eye level, visible on right side only; the third behind and slightly above level of rictus on each side; no other IO pores visible. Five pores visible on mandibular portion of POM canal, none apparent on preopercular section. ST pores absent. Lateral line well developed on body, pores easily visible as small spots; 11 predorsal, 6 prepectoral, 39 preanal.

Teeth conical, relatively small (Fig. 2c). Intermaxillary teeth apparently in two sections, one at base of rostrum continuous with and somewhat larger than maxillary teeth, and the other at anterior tip of rostrum, the two sections separated by a long toothless gap. Maxillary teeth uniserial, compressed and blade-like, closely set, forming a cutting edge, the tips of most curved posteriorly, but in posteriormost teeth the tips curved anteriorly. Vomerine teeth somewhat enlarged, arranged in a short, rounded patch, flanked on either side by the maxillary teeth, and partially separated from intermaxillary patch with a few teeth in between. Mandibular teeth uniserial, similar in form and arrangement to maxillary teeth.

Color in ethanol light to medium brown, belly somewhat paler. Dorsal fin and most of caudal fin pale; anal fin black-edged at posterior end, the black edge extending onto ventral margin of caudal fin. Color in life similar.

Etymology. From Macrouridae, a family of gadiform fishes, and Latin *ceps*, head, in reference to the macrourid-like appearance of the bony rostrum at the tip of the snout.

Distribution. Known only from the type locality off the east coast of Luzon, Philippines.

Discussion

Although clearly a member of the subfamily Bathymyrinae, *Rostroconger macrouriceps* stands out distinctly from all the others, most obviously in the acute bony projection at the anterior end of the snout. The position of the posterior nostril is also unique, opening as a ventrally directed slit in the upper lip. In *Kenyaconger*, the posterior nostril opens ventrally, but it is in a well-defined tube (Smith & Karmovskaya, 2003). In *Parabathymyrus* Kamohara, the posterior nostril is on the upper lip, but it is covered by a distinct, ventrally directed flap; in *Rostroconger*, the nostril is hidden in the lip without any external evidence of its presence. *Rostroconger* resembles *Kenyaconger* in having closely spaced uniserial maxillary and mandibular teeth that form a cutting edge. Species of

Paraconger also have a row of closely spaced maxillary and mandibular teeth forming a cutting edge, but they also have one or more inner rows (Kanazawa, 1961), which are absent in *Rostroconger*. *Paraconger* and *Chiloconger* share with *Rostroconger* a reduced number of IO pores, with only three along the upper jaw: one immediately behind the anterior nostril, one on the edge of the lip under the eye, and one behind the rictus.

Rostroconger expands the morphological diversity shown in the Bathymyrinae. Species of *Ariosoma* Swainson are fairly generalized in appearance, with a moderately long snout, moderately well-developed upper labial flange, teeth in multiserial rows and patches, and the posterior nostril exposed on the side of the head. In *Bathymyrus* Alcock, the intermaxillary teeth are turned upward at the anterior end and exposed when the mouth is closed. In *Parabathymyrus*, the snout is shortened, the labial flange enlarged, and the posterior nostril concealed by a flap. In *Kenyaconger*, the posterior nostril opens through a ventrally directed tube. In *Paraconger* and *Chiloconger*, the infraorbital pores are reduced in number. *Rostroconger* adds a conspicuous bony projection at the tip of the snout. *Rostroconger* is the fourth genus of Congridae known from a single species and a single specimen. The others are *Congrosoma evermanni* Garman, 1899, *Kenyaconger heemstrai* Smith & Karmovskaya, 2003 and *Castleichthys auritus* Smith, 2004. Further examples may turn up in the future.

The specimen was collected off Aurora province on the east coast of Luzon, Philippines. Despite the many collections that have been made in the Philippines over the years, nothing like it has been taken before. This suggests that the species might be restricted to this particular area. The Philippines has perhaps the greatest diversity of marine life in the world, and there are other cases of species that inhabit only restricted areas within the country (see *Ariosoma megalops* in Smith *et al.*, 2018). We clearly have much to learn about the occurrence and distribution of fishes in the Philippines, and indeed in the entire world.

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